PROBLEM: Tremolo does not function (motor does not rotate).

CAUSE: **Faulty power transistor Tr3 or Tr4 (2SD525)** in the tremolo drive circuit.

CURE: Replace the faulty transistor.

CHECK: Remove the transistors and check with ohm meter.

Ohm range.

Black   Red

Tremolo unit.

Drive board.
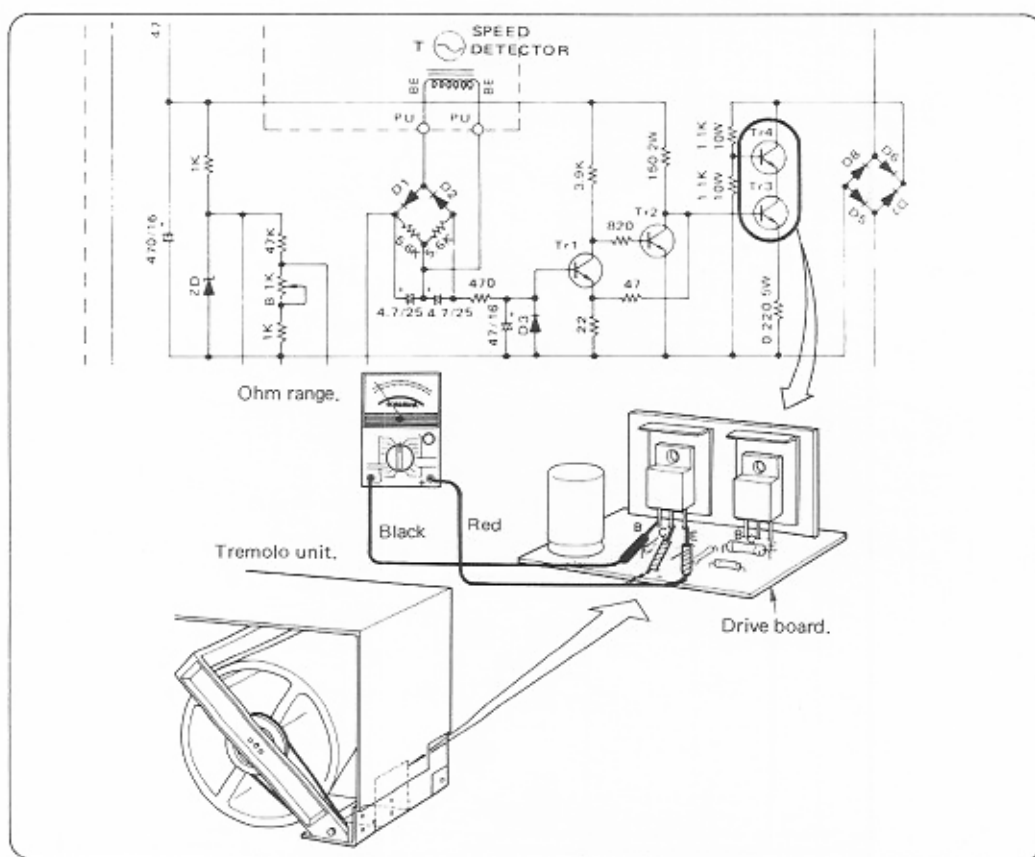
CAUTION: In addition to the above check, check throughly for **open or nearly open transistors. If a slightly unusual VOM reading is obtained, the transistor should be replaced.**

PARTS:

Part No.	Part Name
iD052500	Power Transistor 2SD525

PROBLEM: Noise from tremolo speaker.

CAUSE: Faulty tremolo preamplifier transistor Tr4, Tr5 or Tr6 (2SC458) on the A board.

CURE: Replace the faulty transistor.

CHECK: Check to see if the noise varies with the EXP. Pedal and TOTAL VR, if the noise does vary with the EXP. Pedal and TOTAL VR, then it is coming from before the EXP. Pedal or TOTAL VR. Check the A board TUO terminals with a signal tracer. **Check that the noise can be heard here and not at the TI terminal.**

No noise.

OUTPUT

INPUT

Pre Amp

TO → OUTPUT

Noise is heard.

Replace all 3 transistors (Tr4, 5, 6)
*Repalce 2SC458 with 2SC2320
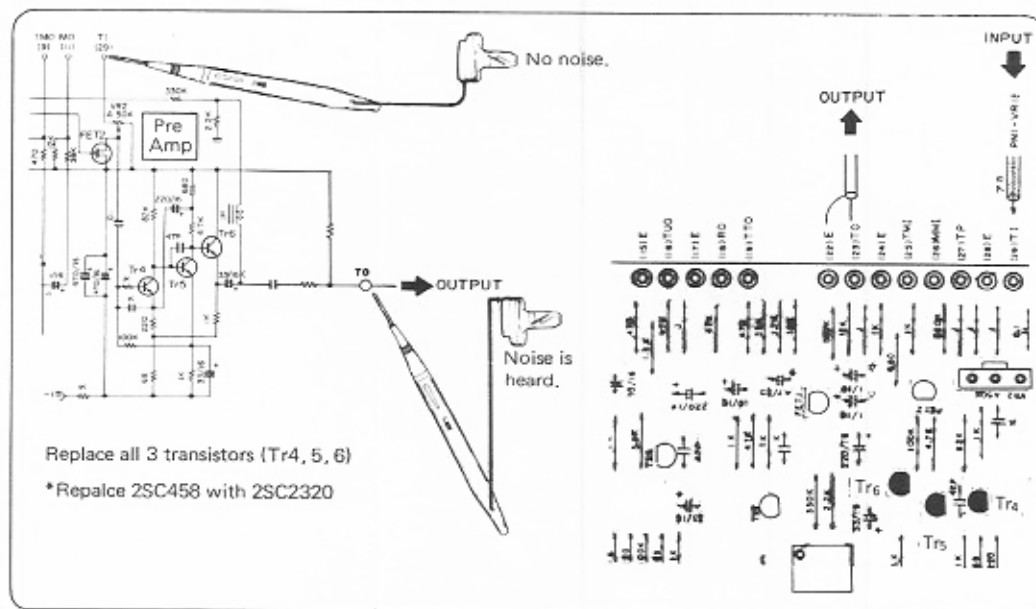
PARTS:

Part No.	Part Name
iC232030	Transistor 2SC2320

PROBLEM: No sound.

CAUSE: The power supply unit fuse (F702) or the amplifier fuse-resistor (100 ohm) has blown.

CURE: Replace the blown fuse.

CHECK:

1. First, disconnect the power supply unit 9-pin connector and turn on the power switch, then check that the power supply fuse has not blown. If the fuse is OK, the fault is in the power amplifier circuit.
2. Disconnect the tremolo power amplifier 4-pin connector and turn on the power switch, then check to see if the fuse is blown.
3. If the 100 ohm fuse-resistor is blown, it must be replaced.

Power unit.

9-pins connector

Tremolo main amp.

Fuse resistor

Power amp unit (tremolo).
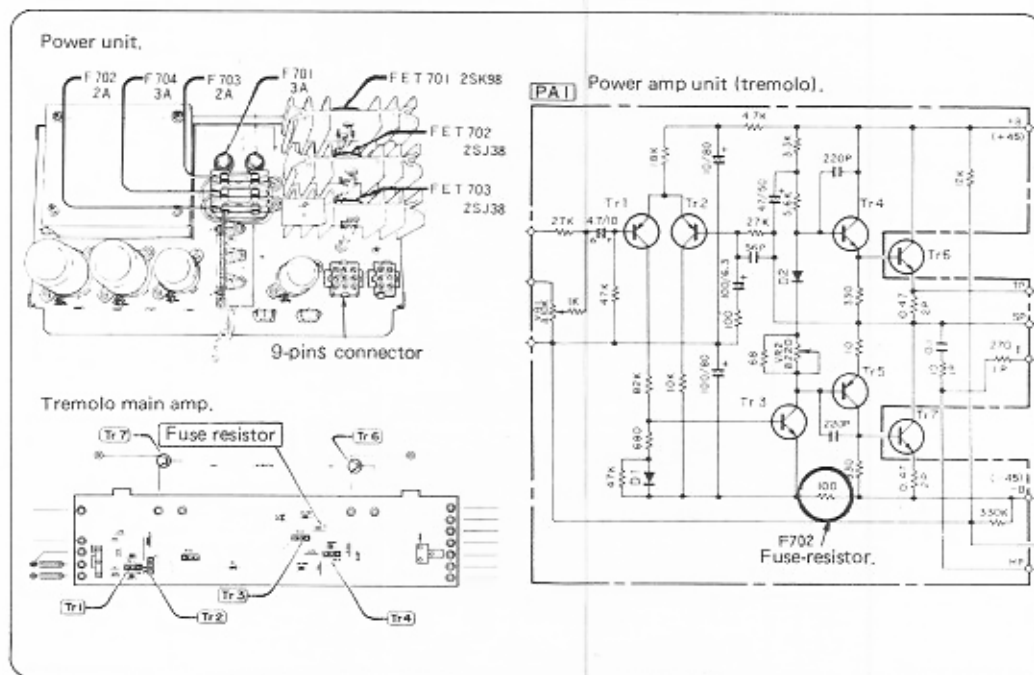
F702 Fuse-resistor.

NOTE: Check all related transistors in addition to replacing the fuse-resistor.

PARTS:

Part No.	Part Name
KB000230	Fuse 2A/125V
HW494100	Fuse-resistor 100 ohms

PROBLEM: No sound, abnormal sound from certain notes in the ORCHESTRA: example 1.

CAUSE: Faulty envelope generator EG1 (YM20800) on the VEG board.

CURE: Replace the faulty EG1 IC (YM20800).

CHECK: First, **determine** which note is functioning abnormally **by pressing each key on the keyboard in succession.** For example, **if the sound is abnormal when four keys are pressed, the fourth note is malfunctioning.** In this case, the following checks are carried out **with three notes held** and the fourth note depressed repeatedly.

VEG board (digital rack)

1st note — PK·VCF·EG
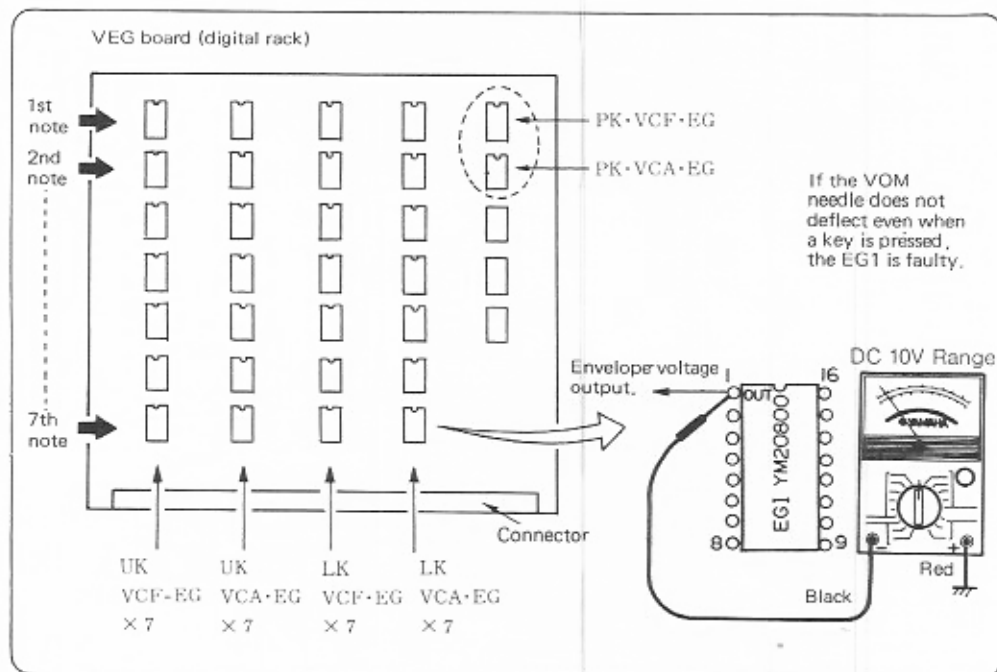2nd note — PK·VCA·EG

If the VOM needle does not deflect even when a key is pressed, the EG1 is faulty.

7th note

Envelope voltage output.

DC 10V Range

EG1 YM20800

Red
Black

Connector

UK	UK	LK	LK
VCF-EG	VCA·EG	VCF·EG	VCA·EG
×7	×7	×7	×7

After the malfunctioning note has been located as described above, check **the envelope voltage** with a VOM. If the envelope output voltage is present, refer to service note "No sound, abnormal sound from certain notes in the orchestra group 3". (on page 27.)

NOTE: This is a double-sided **through-hole** printing board. **Poor connections can occur at the through holes** so check these throughly.

Through hole defect   Solder   Printing pattern

Printing pattern
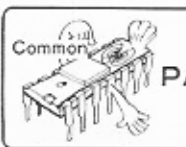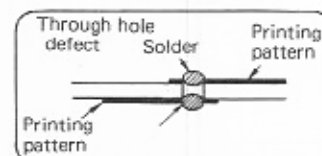
PARTS:

Part No.	Part Name
YM208000	IC YM20850

PROBLEM: No sound, abnormal sound from certain notes in the ORCHESTRA : example 2.

CAUSE: Faulty VCF circuit IC (iG00155) on the VCF board.

CURE: Replace the faulty IC.

CHECK: Be sure that the envelope generator is OK as described in **"No sound, abnormal sound from certain notes in the orchestra group 1"** (on page 25). **Press, and hold down, each key in succession until the abnormal sounding note is heard. Use a signal tracer to troubleshoot the malfunctioning channel.**

VCF board (analog rack)

for 5th note for 1st note
for 6th note for 2nd note
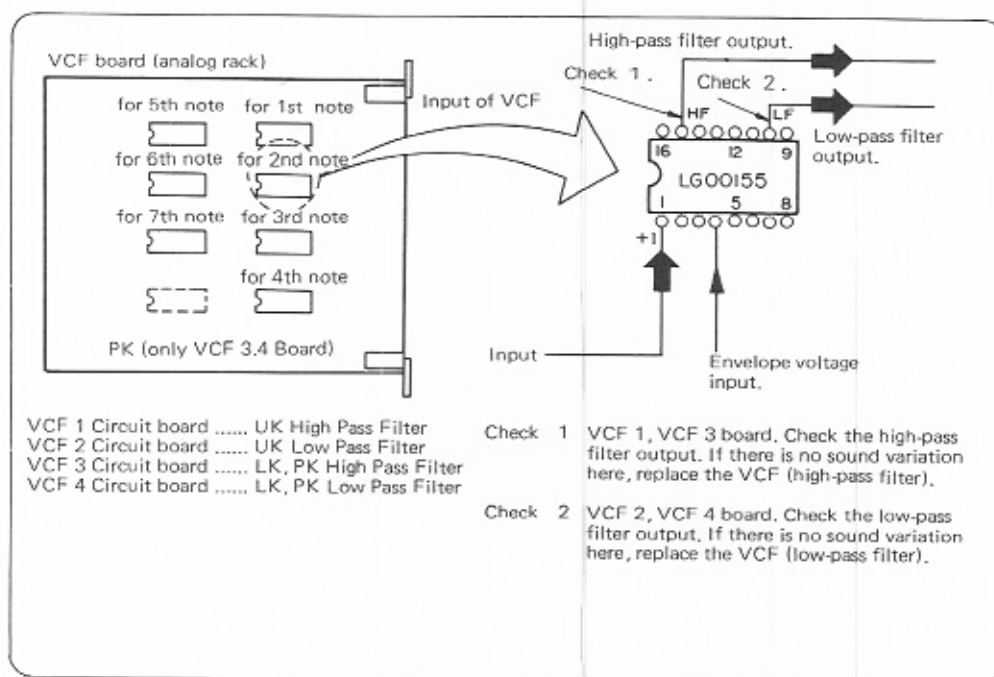for 7th note for 3rd note
for 4th note

PK (only VCF 3.4 Board)

Input of VCF

High-pass filter output.
Check 1.   Check 2.
HF   LF   Low-pass filter output.

LG00155

+1

Input ———   Envelope voltage input.

VCF 1 Circuit board ...... UK High Pass Filter
VCF 2 Circuit board ...... UK Low Pass Filter
VCF 3 Circuit board ...... LK, PK High Pass Filter
VCF 4 Circuit board ...... LK, PK Low Pass Filter

Check 1 VCF 1, VCF 3 board. Check the high-pass filter output. If there is no sound variation here, replace the VCF (high-pass filter).

Check 2 VCF 2, VCF 4 board. Check the low-pass filter output. If there is no sound variation here, replace the VCF (low-pass filter).

NOTE: The same VCF circuit **is used for low-pass and high-pass filters** (different output terminals). Signal flow is as shown in the diagram.

High-pass filter.   Low-pass filter.

1 +1 VCF IS HF   1 +1 VCF I0 LF   VCA

VCF 1, 3 boards.   VCF 2, 4 boards.

PARTS:

Part No.	Part Name
iG001550	IC iG00155

PROBLEM: No sound, abnormal sound from certain notes in the
ORCHESTRA :example 3.

CAUSE: Faulty VCA circuit (iG00151) on the VCA board.
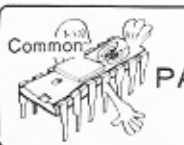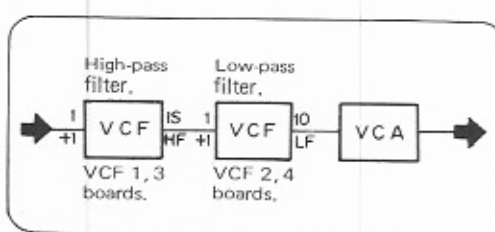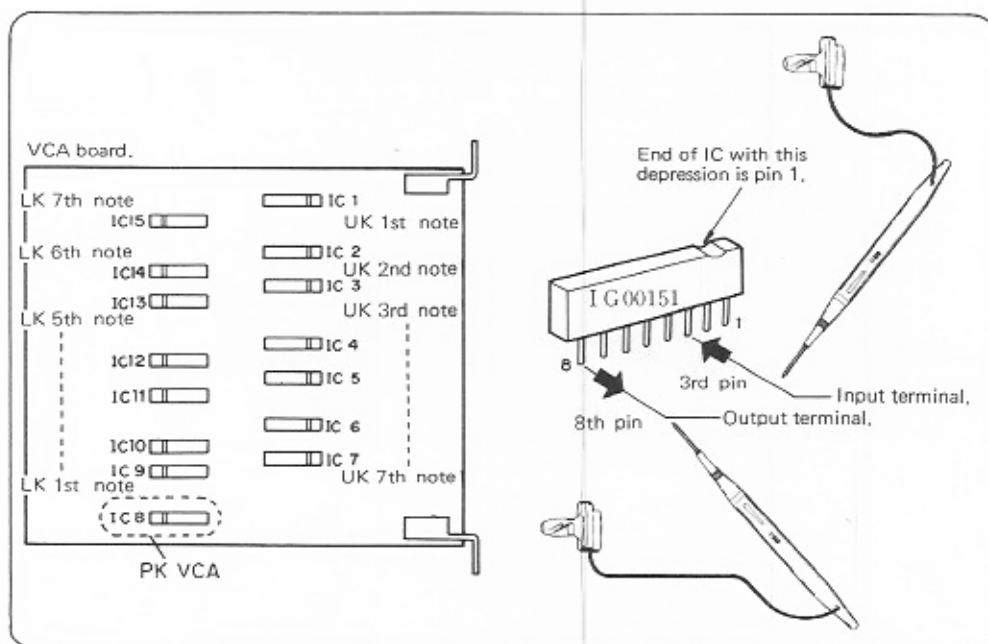
CURE: Replace the faulty IC (iG00151).

CHECK: Check to see that the envelope generator is OK as described in **"No sound, abnormal sound from certain notes in the orchestra group 1" (on page 25.)** and the VCF's on page 26.
- First locate **the no-sound channel** IC.
- Then, compare the input and output with a signal tracer. **Check that the signal can be heard before but not after the IC before replacing.**

VCA board.

LK 7th note
IC15
LK 6th note
IC14
IC13
LK 5th note

IC12
IC11

IC10
IC 9
LK 1st note
IC 8
PK VCA

IC 1
UK 1st note
IC 2
UK 2nd note
IC 3
UK 3rd note
IC 4
IC 5
IC 6
IC 7
UK 7th note

End of IC with this depression is pin 1.

I G 00151

8
8th pin
3rd pin
Input terminal.
Output terminal.

NOTE: **Check carefully to locate the faulty channel. Make sure that a signal is being fed to the faulty channel by fully pressing the appropriate keyboard key.** The method of pressing the keyboard to locate the faulty channel is described in service note "No sound, abnormal sound from certain notes in the organ group 1". **(on page 25.).**

PARTS:

Part No.	Part Name	
iG001510	IC iG00151	

PROBLEM: Abnormal LK ORCHESTRA sound (A.D.S.R) from all seven notes.

**CAUSE:** Shorted A.D.S.R. preset diode matrix (IS2473) on the TPR3 board.

CURE: Replace the faulty diode IS2473 (iF00040).

CHECK: With a VOM set to the RX100 range, test the diodes one by one (reverse polarity), proceeding in the direction indicated by the arrow in the diagram. **When a diode is located that causes the largest meter deflection, check for reverse conductance. The diode that causes the largest meter deflection is shorted.**

RX100 range.

Check carefully in sequence.

PARTS: Common
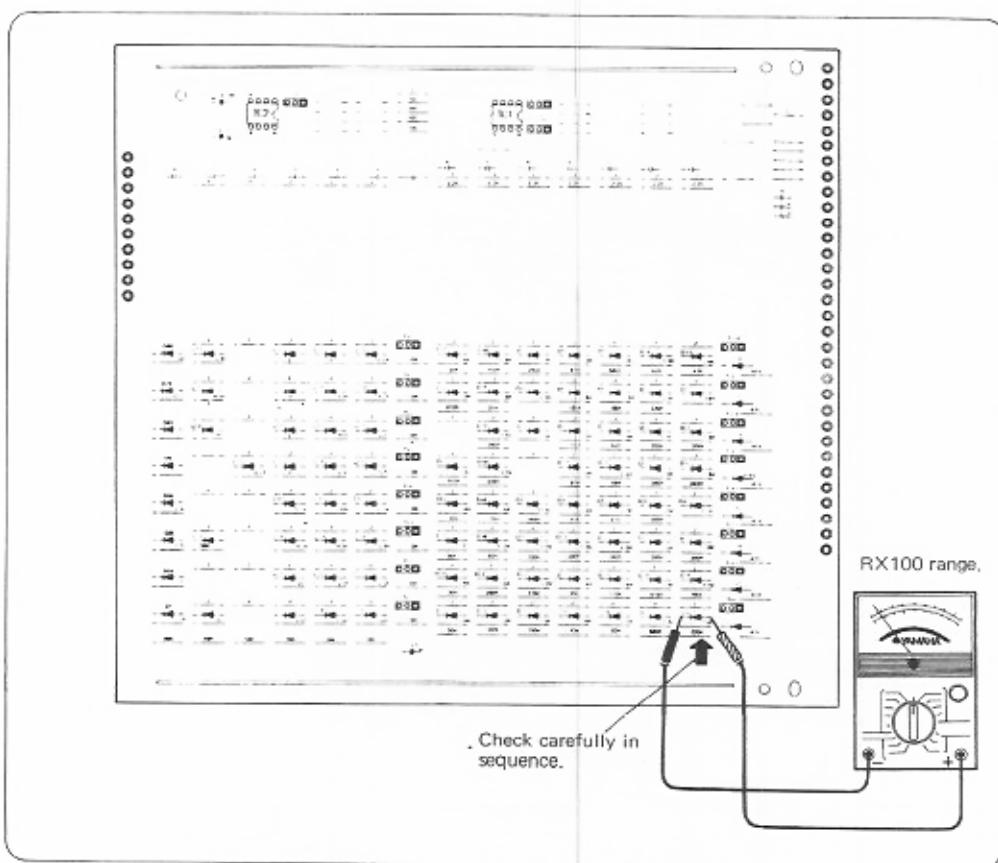
Part No.	Part Name
iF000040	Diode IS1555

This same problem and symptom may occur in the UK or PK ORCHESTRA. Proceed with the same check on the TPR1, 2 and 4 boards.

PROBLEM: PK bounce in sound even when depressed once

CAUSE:

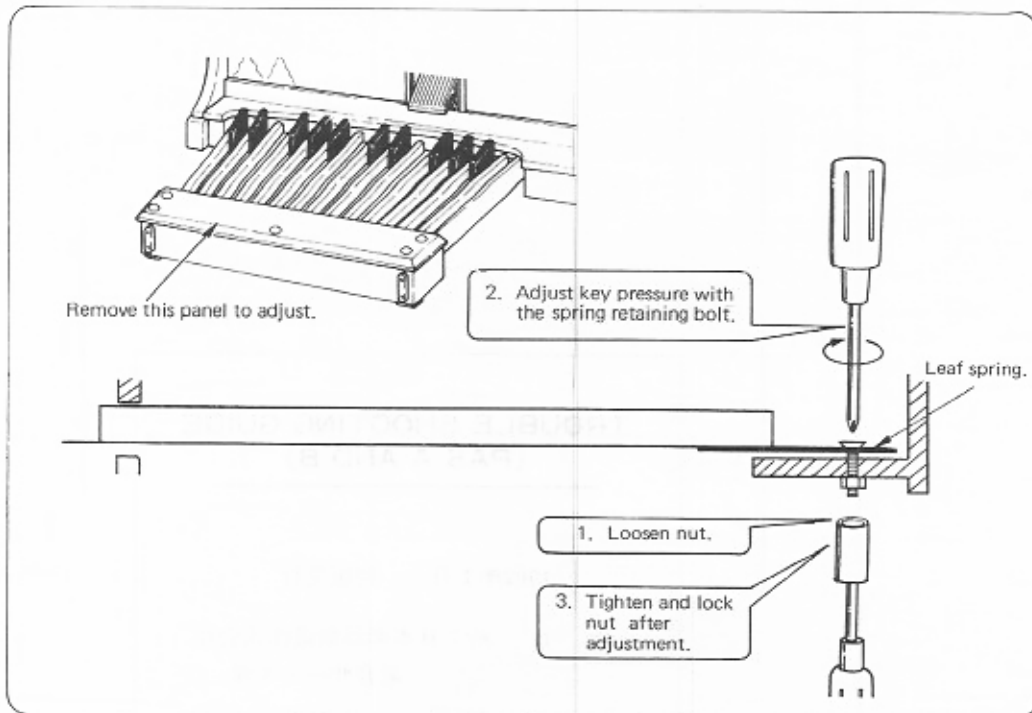Loose pedal keyboard PK pressure bolt.

CHECK:

If a PK pressure bolt is loose, a key is pressed causes the PK switch contacts a second or more time.
The faulty key is easy to locate by using a percussive sound such as BASS GUITAR, and pressing/releasing the keys quickly. This is because the touch of the faulty key is lighter than the normal keys.

CURE:

Adjust the PK leaf spring retaining bolt until the key touch is the same (as heavy) as the normal keys.

Remove this panel to adjust.

2. Adjust key pressure with the spring retaining bolt.

Leaf spring.

1. Loosen nut.

3. Tighten and lock nut after adjustment.

CAUTION:

Adjust so that no key is heavier or lighter in touch than the others.